

MARKED-UP COPY OF AMENDED CLAIMS:

1. (Amended) A control apparatus, comprising:
 - a controller which can be pressed and operated;
 - a detecting device for outputting an analog signal corresponding to the pressing operation of said controller;
 - a level segmenting unit for segmenting the analog signal ~~which is outputted by said detecting device in accordance with the pressing operation of said controller into~~ one of a plurality of levels;
 - an A/D converting unit for converting ~~said~~ the segmented analog signal into a digital signal in accordance with the one of the plurality of level~~output level which is segmented by said level segmenting unit~~; and
 - a segmenting-range setting unit for setting a range of output levels of the analog signal ~~which is segmented by said level segmenting unit~~, wherein the plurality of levels into which the analog signal ~~outputted by said detecting device is segmented by said level segmenting unit~~ are within the range which is set by said segmenting-range setting unit.
2. (Amended) An apparatus according to Claim 1, further comprising a switch for ~~switching providing the outputted signal to either one of a~~ the digital signal with having a plurality of bits ~~or and a digital signal having a~~ single bit, said switch being connected to said A/D converting unit.
3. (Amended) An apparatus according to Claim 1, wherein said segmenting-range setting unit comprises a storing unit, and
 - ~~the plurality of output levels, which are within the range of output levels of the analog signal, into which the analog~~

~~signal outputted by said detecting device are segmented by said level segmenting unit~~ are stored in said storing unit.

4. (Amended) An apparatus comprising
a controller including

a controller which can be pressed and operated;

a detecting device for outputting an analog signal
corresponding to the pressing operation of said controller;

a level segmenting unit for segmenting the analog
signal output by said detecting device into one of a
plurality of levels;

an A/D converting unit for converting the segmented
analog signal into a digital signal in accordance with the
one of the plurality of levels; and

a segmenting-range setting unit for setting a range of
output levels of the analog signal, wherein the plurality
of levels into which the analog signal is segmented are
within the range which is set by said segmenting-range
setting unit; and

an entertainment device having a storing unit for storing
the plurality of levels

~~according to Claim 3, wherein, in place of said storing unit in~~
~~said control apparatus, a storing unit in an entertainment~~
~~device serving as a main body to which said control apparatus is~~
~~connected is used.~~

5. (Amended) An apparatus according to Claim 1, wherein

said segmenting-range setting unit is a volume device that
is inserted in a power line to which said detecting device is
connected for use in determining the range of output levels, and

~~the plurality of levels within the range of the output~~
~~levels, into which the analog signal outputted by said detecting~~

~~device is segmented by said level segmenting unit is detected by said volume device.~~

6. (Amended) An apparatus according to Claim 1, wherein said segmenting-range setting unit comprises:

a volume device that is inserted in a power line to which said detecting device is connected for providing a first voltage level;

a storing unit for storing a limit value of thea range of the output levels of the analog signal ~~which is segmented by said level segmenting unit~~; and

a comparator for comparing the ~~range of the~~ first voltage output levels, ~~which is detected by said volume device~~ with the limit value ~~which is stored in said storing unit~~,

wherein said comparator outputs the range of output levels ~~which is detected by said volume device~~ to said level segmenting unit when ~~said range of output levels~~ the first voltage level is within the limit value ~~which is stored in said storing unit~~, and outputs the limit value ~~which is stored in said storing unit~~ to said level segmenting unit when the ~~output~~ first voltage level ~~which is detected by said volume device~~ is over said limit value.

7. (Amended) An apparatus according to Claim 1, further comprising a projection which is formed at a ~~the~~ bottom of said controller, and an elastic body having a concave portion which engages with and supports said projection, wherein said detecting device is pressed due to deformation of said elastic body.

8. (Amended) An apparatus according to Claim 1, further comprising a first flat surface which is formed at a ~~the~~ bottom of said controller, and an elastic body having a second flat

surface which engages with and supports said first flat surface, wherein said detecting device is pressed due to deformation of said elastic body.

10. (Amended) An apparatus according to Claim 1, further comprising:

a switch;

a digital switch serving as an ON/OFF switch provided in said controller; and

a digital signal generating unit for outputting a single bit digital signal ~~having a single bit~~, said digital signal generating unit being connected to said digital switch,

wherein said switch provides either the digital signal or the single bit digital signals ~~switches an output of the digital signal generating unit and the output of said A/D converting unit.~~

11. (Amended) An apparatus according to Claim 10, further comprising:

an elastic body which engages with and supports at the bottom of said controller;

a first sheet member and a second sheet member; and

first and second fixed terminals provided in said digital switch which are pressed due to deformation of said elastic body and which are provided on one side of said first sheet member,

wherein said detecting device is provided on one side of said second sheet member at portions corresponding to said first and second fixed terminals.

13. (Amended) An apparatus according to Claim 10, further comprising:

an elastic body which engages with and supports ~~the~~ a bottom of said controller; and

first and second fixed terminals provided in said digital switch which are pressed due to deformation of said elastic body and which are provided on one side of said sheet member,

wherein said detecting device is provided on the other side of said sheet member at portions corresponding to said first and second fixed terminals.

14. (Amended) ~~A signal output adjusting method of a control~~ An apparatus according to Claim 3, wherein said controller is pressed and ~~controlled~~ operated by a pressure which is preset and ~~an~~ the output level of the analog signal which is output ~~ted~~ by said detecting device during the pressing operation of said controller is stored in said storing unit.

15. (Amended) ~~A signal output adjusting method of a control~~ An apparatus according to Claim 5, wherein the segmenting range setting unit adjusts the plurality of levels in response to detecting a change in the range of output levels, ~~if the output level which is detected by the volume device that is inserted in the power line to which said detecting device is connected is changed and said output level is monitored, the output level of the analog signal outputted by said detecting device is segmented into the plurality of levels within the range of the output levels which is detected by the volume device after the change.~~

16. (Amended) A signal output adjusting method of a control apparatus comprising a controller which can be pressed and operated, a detecting device for outputting an analog signal corresponding to the pressing operation of ~~said~~ the controller, a level segmenting unit for segmenting the analog signal which is outputted by ~~said~~ the detecting device in accordance with the pressing operation of ~~said~~ the controller into one of a

plurality of levels, and an A/D converting unit for converting ~~said the~~ analog signal into a digital signal in accordance with the one of the plurality of levels output level which is segmented by ~~said the~~ level segmenting unit, ~~said the~~ control apparatus being connected to an entertainment device ~~having a function of a program~~, said method comprising the steps of:

outputting, by ~~said the~~ entertainment device, a control guide for causing the controller to be operated on the basis of a predetermined adjusting program;

storing ~~the~~ an output level of a resultant ~~the~~ analog signal ~~which is outputted~~ by ~~said the~~ detecting device in a storing unit which is built in or connected to ~~said the~~ entertainment device; and

segmenting, by ~~said the~~ level segmenting unit, the resultant analog signal ~~which is outputted~~ by ~~said the~~ detecting device into a plurality of levels on the basis of ~~said the~~ output level ~~which is stored~~ in ~~said the~~ storing unit.

17. (Amended) A method according to Claim 16, further comprising the step of storing the output level of the resultant analog signal ~~which is outputted~~ by ~~said the~~ detecting device in a memory card as ~~said the~~ storing unit, which is detachably connected to the entertainment device, by pressing and operating ~~said the~~ controller in accordance with ~~said the~~ control guide.

REMARKS

Reconsideration of this application as amended is respectfully requested. Claims 1-8, 10, 11 and 13-17 have been amended. Therefore, claims 1-17 are in this application and are presented for the Examiner's consideration in view of the following comments.

Claims 1-17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Taiwan Patent Publication No. 288636 of Han-Che Wang ("Wang") in view of U.S. Patent No. 6,102,802 issued August 15, 2000 to Armstrong ("Armstrong"). Applicants respectfully disagree.

Applicants' independent claims 1 and 16 include requirements not described in or suggested by either Wang or Armstrong or in their combination. For example, Applicants' claims 1 and 16 require a level segmenting unit for segmenting the analog signal into a plurality of levels.

Applicants note that the Examiner states that Wang teaches "a level segmenting unit (12) for segmenting the analog signal which is outputted by the detecting device in accordance with the pressing operation of the controller into a plurality of levels." Applicants respectfully submit that the Examiner is wrong.

The automatic scanning circuit 12 of Wang does not segment the analog signal into a plurality of levels as required by Applicants' independent claims 1 and 16. In particular, pressure-sensitive resistor 11 of Wang consists of four regions - 111, 112, 113 and 114. The output voltage from each of these regions is scanned by automatic switch scanning circuit 12 and directly applied to analog-to-digital converter 13. (Wang, English Translation, pg. 3, lns. 17-38.) In other words, automatic switch scanning circuit 12 does not segment the analog signal into levels but simply applies whatever output voltage appears at a particular

region to analog-to-digital converter 13. This is clearly seen in the block diagram of automatic switch scanning circuit 12 of FIG. 1 of *Wang*.

Nor is Applicants' requirement of a level segmenting unit described in, or suggested by, *Armstrong*. *Armstrong* only describes a pressure-sensitive variable conductance material that, dependent on applied pressure, alters its conductivity and provides an analog electrical output proportional to applied pressure to control electronic imagery. (*Armstrong*, col. 2, lns. 55-63.) Nowhere does *Armstrong* describe or suggest any segmentation of an analog signal into a plurality of levels.

In addition, with respect to Applicants' claimed "segmenting range setting unit," the Examiner states that this is met by *Wang* because "it would be inherent for there to be some type of charge provided by the resistor." Respectfully, Applicants fail to see the connection between a charge, or voltage, provided by the pressure sensitive resistor of *Wang* and Applicants' claimed segmenting unit for setting a range of output levels. Nor is such a requirement described or suggested by *Armstrong*.

In view of the above, Applicants respectfully submit that independent claims 1 and 16, along with respective dependent claims 2-15 and 17, are patentable over *Wang* in view of *Armstrong*.

Applicants have also amended claims 1-8, 10, 11 and 13-17 to improve their form. It should be noted that claim 4 has been rewritten in independent form including the requirements of Applicants' independent claim 1.

Applicants have briefly reviewed the remaining prior art references made of record in the Official Action, but not relied upon, and believe them to be no more pertinent to the present invention than discussed in the present Official Action.

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited. If, however, for any reason



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